

REMARKS

With the above amendments, claims 1-2, 4-8, 13, and 15- 20 remain in the application. Claim 14 has been canceled without prejudice. Applicant respectfully requests entry of the aforementioned amendments as they will place the claims in condition for allowance.

Claim Rejections -- 35 U.S.C. § 103

Claims 1, 2, 5, 6, 13, 14, 17, 19, and 20 stand rejected under 35 U.S.C. § 103(a) as being patentable over U.S. Patent Publication No. US 2002/0033136 A1 by Savage et al. (“Savage”) in view of U.S. Patent No. 6,007,675 to Toshima (“Toshima”). However, the office action seems to be referring to Kroeker (U.S. Patent Publication No. 2002/0031420 A1 by Kroeker) rather than Savage. Therefore, this response will address the combination of Kroeker and Toshima.

Kroeker discloses what appears to be a cluster tool while Toshima discloses what appears to be a single process chamber tool. In paragraph 5 of the last office action, it is suggested that it would have been obvious to incorporate Toshima's transfer chamber in Kroeker's cluster tool. Unfortunately, Kroeker discloses a wafer processing architecture employing one load lock per process chamber. So, in paragraph 10 of the last office action, it is suggested that it would have been obvious to use two of Kroeker's load locks (even when Kroeker discloses the use of one load lock per process chamber; see Kroeker FIG. 12) with Toshima's transfer chamber. Then, to allow transfer of wafers into the load locks, it is suggested in paragraph 11 of the last office action that it would have been obvious to use Kroeker's atmospheric robot in the modified Kroeker architecture with two load locks and Toshima's transfer chamber. It is respectfully submitted that the combination suggested in the last office action selectively picks and chooses elements from Kroeker and Toshima using the present application as a blueprint. Toshima does not suggest using a single wafer load lock with its transfer chamber. Kroeker does not suggest using two load locks per process chamber. Kroeker does not suggest using a

multi-station process chamber with a single-wafer load lock. The above combination, along with its attendant benefits, is only disclosed in the present application, not in the prior art.

In any event, the Kroeker/Toshima combination still fails to show every element of the present claims. Claim 1 is patentable over the Kroeker/Toshima combination at least for reciting that the single wafer load lock has a wafer support. Kroeker's load lock has an internal robot but no wafer support. In Kroeker, process chamber 249, not load lock 200, has a wafer support 247 (See Kroeker, FIGS. 2, 4A-4D, paragraph 29, paragraph 31). That is, Kroeker's load lock 200 only includes components within chamber cavity 201, which does not include a wafer support. It is respectfully submitted that Kroeker's blade 262 on robot 204 does not constitute "a wafer support" in the context of claim 1 and to those of ordinary skill in the art, specially when Kroeker itself discloses a "wafer support" in the form of wafer support 247 in process chamber 249. Claims 7 and 8 further show the problem with the claim construction that the blade 262 is a "wafer support" in the context of claim 1. Claims 7 and 8 recite that the wafer support of claim 1 includes a pedestal; a robot blade cannot be or incorporate a pedestal. Nevertheless, to expedite prosecution of this application, claim 1 has been amended to recite that the load lock includes a "transfer mechanism" to further show that the wafer support is distinct from the transfer mechanism.

Claims 2, 5, and 6 depend on claim 1. Therefore, claims 2, 5, and 6 are patentable over the Kroeker/Toshima combination for the same reasons, as well as because of the combination of features set forth in these claims and in claim 1.

In regard to claim 6, it is respectfully submitted that it would not have been obvious have "a pump coupled only to the first and second single-wafer load locks, the pump being located locally on the wafer processing system" in a wafer processing system. The conventional pump arrangement in a wafer processing system is to share pumps among modules and to locate the pumps remotely (not locally) from the wafer processing system. The use of a separate local pump, and its attendant benefits, is only disclosed in the present application, not in the prior art (see Specification, page 8, lines 13-17).

Like claim 1, claim 13 is patentable over the Kroeker/Toshima combination for reciting that each of the load locks includes a single wafer support and a transfer mechanism. Claims 14, 17, 19 and 20 depend on claim 13. Therefore, claims 14, 17, 19 and 20 are patentable over the Kroeker/Toshima combination for similar reasons as well as because of the combination of features set forth in these claims and in claim 13.

Claims 4 and 18 stand rejected under 35 USC §103(a) as being unpatentable over Kroeker and Toshima and further in view of U. S. Patent No. 6,042,324 to Aggarwal et al. ("Aggarwal"). As discussed above, the Kroeker/Toshima combination does not disclose a load lock that includes a single wafer support and a transfer mechanism as recited in claims 1 and 13. Neither does Aggarwal. Claim 4 depends on claim 1, while claim 18 depends on claim 13. Therefore, claims 4 and 18 are patentable over Aggarwal at least for the same reasons that claims 1 and 18, respectively, are patentable.

Claims 7 and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kroeker/Toshima combination and further in view of Savage. In paragraph 24 of the last office action, it is suggested that it would have been obvious to incorporate Savage's cooling plate 95 in Kroeker's load lock. The rejection is respectfully traversed. Firstly, the last office action seems to be construing Kroeker's robot blade as a "wafer support." There is no teaching on how to incorporate a cooling plate in a blade (if at all possible). Secondly, it appears that Kroeker achieved a small volume load lock by not including a pedestal along with internal robot 204 in load lock 200. It is respectfully submitted that there is no teaching on how a pedestal may be incorporated in Kroeker's load lock. For example, such a pedestal would block the path of robot 204, and would thus prevent robot 204 from transferring a wafer to process chamber 249 (see the outline and range of motion of robot 204 with blade 602 in Kroeker's FIGS. 3, and in FIGS. 4A-4D). It is also questionable if a pedestal would even fit in Kroeker's load lock. It is well-established that if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221. Furthermore, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of

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the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810. Therefore, it is respectfully submitted that claims 7 and 15 are patentable over the Kroeker/Toshima/Savage combination.

Claims 8 and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kroeker and Toshima and in further view of U. S. Patent No. 5,314,541 to Saito et al. ("Saito"). It is respectfully submitted that it would not have been obvious to incorporate Saito's pedestal in Kroeker's load lock for the same reasons given above for claims 7 and 15.

Conclusion

For at least the above reasons, it is respectfully submitted that claims 1-2, 4-8, 13 and 15-20 are in condition for allowance. The Examiner is invited to telephone the undersigned at (408)436-2112 for any questions.

If for any reason an insufficient fee has been paid, the Commissioner is hereby authorized to charge the insufficiency to Deposit Account No. 50-2427.

Respectfully Submitted,  
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